

§ 971.423), as appropriate, and monitoring requirements (pursuant to § 971.424) to acquire more information on the environmental effects of deep seabed mining.

§ 971.603 At-sea monitoring.

(a) An applicant must submit with its application a monitoring plan designed to enable the Administrator to assess environmental impacts and to develop and evaluate possible methods of mitigating adverse environmental effects, to validate assessments made in the EIS, and to assure compliance with the environmental protection requirements of this part.

(b) The monitoring plan shall include a characterization of the proposed mining system in terms of collector contact, benthic discharge and surface discharge.

(c) The monitoring plan shall include determination of (1) the spatial and temporal characteristics of the mining ship discharges; (2) the spatial extent and severity of the benthic impact, including recovery rate and pattern of benthic recolonization; and (3) any secondary effects that result from the impact of the mining collector and benthic plume.

(d) The monitoring of benthic impact shall involve the study of two types of areas, each selected by the permittee in consultation with NOAA, which areas shall be representative of the environmental characteristics of the permittee's site:

(1) An impact reference area, located in a portion of a permit area tentatively scheduled to be mined early in a commercial recovery plan; and

(2) An interim preservational reference area, located in a portion of a permit area tentatively determined: to be non-mineable, not to be scheduled for mining during the commercial recovery plan, or to be scheduled for mining late in the plan.

Reference areas may be selected provisionally prior to application for a commercial recovery permit.

(e) The following specific environmental parameters must be proposed for examination in the applicant's monitoring plan:

(1) Discharges—

(i) Salinity, temperature, density.

(ii) Suspended particulates concentration and density.

(iii) Particulate and dissolved nutrients and metals.

(iv) Size, configuration, and velocities of discharge.

(2) Upper water column—

(i) Nutrients.

(ii) Endangered species (observations).

(iii) Salinity, temperature, density.

(iv) Currents and direct current shear.

(v) Vertical distribution of light.

(vi) Suspended particulate material advection and diffusion.

(vii) In-situ settling velocities of suspended particulates.

(viii) Zooplankton and trace metals uptake.

(ix) Fish larvae.

(x) Behavior of biota, including commercially and recreationally valuable fish.

(3) Lower water column and seafloor—

(i) Currents.

(ii) Suspended particulate material advection and diffusion.

(iii) In-situ settling velocities of suspended particulates.

(iv) Benthic scraping and blanketing, and their impacts and recovery.

(f) The monitoring plan shall include provision for monitoring those areas impacted by the permittee's mining activities, even if such areas fall outside its minesite, where the proposed activities have the potential to cause significant adverse environmental effect or irreparable harm in the outside area.

(g) After the Administrator's approval of the monitoring plan, this plan will become a permit TCR. The monitoring plan TCR will include, to the maximum extent practicable, identification of those activities or events that could cause suspension or modification due to environmental effects under § 971.417, or permit revocation in the event that these effects cannot be adequately mitigated. The TCR also will authorize refinement of the monitoring plan prior to testing and commercial-scale recovery, and at other appropriate times, if refinement is necessary to reflect accurately proposed operations or to incorporate recent research or monitoring results.

(h) If test mining is proposed, the applicant shall include in the monitoring plan a monitoring plan for the test(s) as well as a strategy for using the result to monitor more effectively commercial-scale recovery. This monitoring shall address concerns expressed in the PEIS and in the permit EIS.

(i) The monitoring plan shall include a sampling strategy that assures: that it is based on sound statistical methods, that equipment and methods be scientifically accepted, that the personnel who are planning, collecting and analyzing data be scientifically well qualified, and that the resultant data be submitted to the Administrator in accordance with formats of the National Oceanographic Data Center and other formats as may be specified by the Administrator.

(j) Pursuant to section 114(l) of the Act, the Administrator intends to place observers onboard mining vessels, not only to ensure that permit TCRs are followed, but also to evaluate the effectiveness of monitoring strategies, both in terms of protecting the environment and in being cost-effective (See § 971.1005), and if necessary, to develop potential mitigation measures. If modification of permit TCRs or regulations is required to protect the quality of the environment, the Administrator may modify TCRs pursuant to § 971.414, or the regulations pursuant to § 971.804.

§ 971.604 Best available technologies (BAT) and mitigation.

(a) The Administrator shall require in all activities under new permits, and wherever practicable in activities under existing permits, the use of the best available technologies for the protection of safety, health, and the environment wherever such activities would have a significant adverse effect on safety, health, or the environment, except where the Administrator determines that the incremental benefits are clearly insufficient to justify the incremental costs of using such technologies. Because of the embryonic nature of the industry, NOAA is unable either to specify particular equipment or procedures comprising BAT or to define performance standards. Until such experience exists, the applicant shall submit such information as is nec-

essary to indicate, as required above, the use of BAT, the alternatives considered to the specific equipment or procedures proposed, and the rationale as to why one alternative technology was selected in place of another. This analysis shall include a discussion of the relative costs and benefits of the technologies considered.

(b) NOAA is not specifying particular mitigation methodologies or techniques at this time (such as requiring the sub-surface release of mining vessel discharges), but expects applicants and permittees to develop and carry out their operations, to the extent possible, to minimize adverse environmental effects and to be able to demonstrate efforts to that end. The applicant must submit a plan describing how he would mitigate a problem, if it were caused by the surface release of mining vessel discharges, including a plan for the monitoring of any discharges. Based upon monitoring results, NOAA may find it necessary in the future to specify particular procedures for minimizing adverse environmental effects. These procedures would be incorporated into permit TCRs.

(c) NOAA will require the permittee to report, prior to implementation, any proposed technological or operational changes that will increase or have unknown environmental effects. Changes in composition, concentration or size distribution of suspended particulates discharged from the mining vessel, water depth of vessel discharges, depth of cut in the seafloor of the mining collector, and direction or amount of sediment discharged at the seafloor are factors of concern to NOAA. In reporting any such change, the permittee shall submit information to indicate the use of BAT, alternatives considered, and rationale for selecting one technology in place of another, in a manner comparable to and to the extent required in paragraph (a) of this section. If proposed changes have a high potential for increasing adverse environmental effects, the Administrator may disapprove or require modification of the changes.